

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-11. (Canceled)

12. (Currently Amended) The hydrostatic bearing of claim 44 [[11]], wherein said bearing carriage further comprises:

~~a fluid inlet port and sealing structures include fluid inlet ports constructed and arranged to receive hydraulic fluid hoses, said fluid input port ports being in fluid communication with said one or more bearing pads; and~~

~~a fluid outlet port constructed and arranged to receive hydraulic fluid hoses, said fluid outlet port being in fluid communication with said plurality of drain grooves.~~

13-16. (Canceled)

17. (Currently Amended) The hydrostatic bearing of claim 44 [[1]], further comprising one or more fastening holes provided on upper surfaces of said bearing carriage, said fastening holes being constructed and arranged to allow a machine component to be removably mounted on said bearing carriage.

18. (Currently Amended) A machine tool mounted on one or more hydrostatic bearings according to claim 44 [[1]].

19-35. (Canceled)

36. A bearing carriage, comprising:

one or more bearing pads constructed and arranged to receive fluid from a pressurized fluid source and to cause that fluid to flow selectively over a collection of bearing grooves and resistive lands so as to create a supporting fluid layer between said bearing carriage and a structure on which said bearing carriage is mounted for movement; and

a fluid recovery system constructed and arranged to prevent fluid from flowing out of the space between said bearing carriage and the structure on which said bearing carriage is mounted for movement and to route the fluid back towards the pressurized fluid source, said fluid recovery system comprising:

a sealing structure having contiguous end and side portions, said end portions being constructed and arranged to seal ends of said bearing carriage and said side portions being constructed and arranged to extend along at least a portion of sides of said bearing carriage to seal said sides, said end portions including a double-lipped seal, a first lip of the double-lipped seal engaging the structure on which said bearing carriage is mounted for movement and a second lip of said double-lipped seal preventing debris from entering said bearing carriage;

reservoir structures defined by portions of said bearing carriage and sealed by said sealing structure; and

drain grooves constructed and arranged to conduct pressurized fluid from said bearing pads to said reservoir structures.

37. The bearing carriage of claim 36 wherein said drain grooves are between said bearing pads and the side portions of said sealing structure.

38-41. (Canceled)

42. (Currently Amended) The bearing carriage of claim 44 [[41]], wherein the side portions of said sealing structure have a substantially upwardly-facing u-shaped cross-section.

43. (Canceled)

44. (Currently Amended) A hydrostatic bearing comprising:

a bearing rail; and

a bearing carriage constructed and arranged to be mounted for hydrostatically supported movement on said bearing rail, said bearing carriage including

one or more bearing pads provided on surfaces that oppose said bearing rail, said one or more bearing pads being constructed and arranged to be in fluid communication with a pressurized fluid source;

~~seal receiving grooves;~~

~~a sealing structure having contiguous side and end portions, at least a portion of said sealing structure being adapted to be received in the seal receiving grooves of said bearing carriage, end portions of said sealing structure including double lipped seals;~~

a fluid return system including a plurality of drain grooves in fluid communication with said one or more bearing pads, at least one ~~some~~ of said plurality of drain grooves being positioned between the one or more bearing pads and the ~~side portions of~~ ~~said~~ sealing structure.

45. (Currently Amended) The hydrostatic bearing of claim 44 [[45]], wherein said bearing carriage further comprises one or more reservoirs in fluid communication with said plurality of drain grooves.

46. (Currently Amended) The hydrostatic bearing of claim 45, wherein said one or more reservoirs comprise a plurality of reservoirs that are provided in end portions of said bearing carriage, ones of said plurality of reservoirs including fluid inlet and outlet ports in communication with a hydraulic power unit.

47. The hydrostatic bearing of claim 44, wherein said bearing rail has a rectilinear shape.

48. The hydrostatic bearing of claim 47, wherein said bearing rail has a T-shaped cross-sectional area.

49. The hydrostatic bearing of claim 44, wherein said one or more bearing pads are self-compensating bearing pads.

50. (Canceled)

51. (Currently Amended) A hydrostatic bearing pad, comprising:

a compensating groove;

an adjacent pocket groove enclosing therein a first planar area constructed and arranged to resist a flow of pressurized fluid when said hydrostatic bearing pad is in a load supporting position relative to another surface; and

a second planar area interposed between said compensating groove and said pocket groove, said planar area being constructed and arranged to resist the flow of the pressurized fluid from said compensating groove to said adjacent pocket groove when said bearing pad is in the load supporting position relative to the other surface; and

a supply groove proximate to said compensating groove, said supply groove and said compensating groove being separated by a third planar area that is constructed and arranged to resist the flow of pressurized fluid from said supply groove to said compensating groove;

wherein the supply groove is entirely disposed on a planar surface of the bearing pad

~~wherein said bearing pad does not include grooves between the compensating groove and the pocket groove.~~

52. The hydrostatic bearing pad of claim 51, wherein the second planar area does not include grooves between the compensating groove and the pocket groove further comprising a supply groove proximate to said compensating groove, said supply groove and said compensating groove being separated by a third planar area that is constructed and arranged to resist the flow of pressurized fluid from said supply groove to said compensating groove.

53-58. (Canceled)

59. (Currently Amended) The hydrostatic bearing of claim 44 [[57]], wherein said bearing carriage further comprises a central portion and removably mounted separable keeper portions that engage portions of said bearing rail.

60. (Currently Amended) The hydrostatic bearing of claim 59, wherein said side portions of said sealing structure are disposed within seal grooves in said keeper portions include sealing structures mounted within seal grooves.

61. (Canceled)

62. (New) The hydrostatic bearing of claim 44, wherein at least one of the plurality of drain grooves extends along the length of said bearing carriage.

63. (New) The hydrostatic bearing of claim 44, wherein the end portions of said sealing structure include double-lipped seals.

64. (New) The hydrostatic bearing of claim 44, wherein one of the one or more bearing pads includes a pocket groove enclosing therein a first planar area constructed and arranged to resist a flow of pressurized fluid when said one of the one or more bearing pads is in a load supporting position relative to said bearing rail; and

wherein the plurality of drain grooves completely surrounds the pocket groove.

65. (New) The hydrostatic bearing of claim 64, wherein the one of the one or more bearing pads includes a second planar area constructed and arranged to resist a flow of pressurized fluid when said one of the one or more bearing pads is in a load supporting position relative to said bearing rail, wherein said second planar area contiguously surrounds said pocket groove, wherein the plurality of drain grooves completely surrounds the second planar area.

66. (New) The hydrostatic bearing of claim 44, wherein the plurality of drain grooves completely surrounds the one or more bearing pads.

67. (New) A hydrostatic bearing carriage constructed and arranged to be mounted for hydrostatically supported movement on a bearing rail, said bearing carriage comprising a plurality of self-compensating bearing pads, said plurality of bearing pads being constructed and arranged to be in fluid communication with a pressurized fluid source, each of the bearing pads comprising:

a compensating groove;

a supply groove fluidly connected to a compensating groove on another of the plurality of bearing pads, the supply groove being constructed and arranged to receive pressurized fluid from the compensating groove on another of the plurality of bearing pads; and

a resistive land surrounding the groove and constructed and arranged to receive pressurized fluid from the compensating groove to create a supporting fluid layer between the bearing pad and the bearing rail, wherein the resistive land is entirely planar.

68. (New) The hydrostatic bearing of claim 67, further comprising:

- a fluid return system including at least one drain groove completely surrounding the resistive lands; and
- a seal structure completely surrounding the at least one drain groove.